

Prüfbericht-Nr.: <i>Test report No.:</i>	50298108 001	Auftrags-Nr.: <i>Order No.:</i>	170103327	Seite 1 von 23 <i>Page 1 of 23</i>	
Kunden-Referenz-Nr.: <i>Client reference No.:</i>	N/A	Auftragsdatum: <i>Order date.:</i>	14.01.2019		
Auftraggeber: <i>Client:</i>	Zhao Qing Bo Han Sports Company Ltd. No. 2-1, Kang Tai Street, High-tech Zone, Zhaoqing City, Guangdong Province, P. R. China				
Prüfgegenstand: <i>Test item:</i>	SMART HELMET(MOON, BAABALI, SAFE TEC)				
Bezeichnung / Typ-Nr.: <i>Identification / Type No.:</i>	FT03				
Auftrags-Inhalt: <i>Order content:</i>	FCC approval				
Prüfgrundlage: <i>Test specification:</i>	CFR47 FCC Part 15: Subpart C Section 15.247 CFR47 FCC Part 15: Subpart C Section 15.207 CFR47 FCC Part 15: Subpart C Section 15.209 CFR47 FCC Part 2: Section 2.1091				
Wareneingangsdatum: <i>Date of receipt:</i>	26.03.2019	Please refer to photo documents			
Prüfmuster-Nr.: <i>Test sample No.:</i>	A000867916-001				
Prüfzeitraum: <i>Testing period:</i>	Refer to test report				
Ort der Prüfung: <i>Place of testing:</i>	TÜV Rheinland (Guangdong) Ltd.				
Prüflaboratorium: <i>Testing laboratory:</i>	TÜV Rheinland (Guangdong) Ltd.				
Prüfergebnis*: <i>Test result*:</i>	Pass				
geprüft von / tested by:		kontrolliert von / reviewed by:			
 05.11.2019 Amy Wang / Project Manager		 06.11.2019 Storm Shu / Technical Certifier			
Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>	Datum <i>Date</i>	Name/Stellung <i>Name/Position</i>	Unterschrift <i>Signature</i>
Sonstiges / Other:					
FCC ID: 2AGSKML02-FT03					
Zustand des Prüfgegenstandes bei Anlieferung: <i>Condition of the test item at delivery:</i>			Prüfmuster vollständig und unbeschädigt <i>Test item complete and undamaged:</i>		
* Legende: 1 = sehr gut 2 = gut 3 = befriedigend 4 = ausreichend 5 = mangelhaft P(ass) = entspricht o.g. Prüfgrundlage(n) F(ail) = entspricht nicht o.g. Prüfgrundlage(n) N/A = nicht anwendbar N/T = nicht getestet					
Legend: 1 = very good 2 = good 3 = satisfactory 4 = sufficient 5 = poor P(ass) = passed a.m. test specifications(s) F(ail) = failed a.m. test specifications(s) N/A = not applicable N/T = not tested					
Dieser Prüfbericht bezieht sich nur auf das o.g. Prüfmuster und darf ohne Genehmigung der Prüfstelle nicht auszugsweise vervielfältigt werden. Dieser Bericht berechtigt nicht zur Verwendung eines Prüfzeichens. <i>This test report only relates to the a. m. test sample. Without permission of the test center this test report is not permitted to be duplicated in extracts. This test report does not entitle to carry any test mark.</i>					

Test Summary

5.1.1 ANTENNA REQUIREMENT

RESULT: Pass

5.1.2 MAXIMUM PEAK CONDUCTED OUTPUT POWER

RESULT: Pass

5.1.3 CONDUCTED SPURIOUS EMISSIONS MEASURED IN 100 KHz BANDWIDTH

RESULT: Pass

5.1.4 RADIATED SPURIOUS EMISSION

RESULT: Pass

5.1.5 20dB BANDWIDTH

RESULT: Pass

5.1.6 CARRIER FREQUENCY SEPARATION

RESULT: Pass

5.1.7 NUMBER OF HOPPING FREQUENCY

RESULT: Pass

5.1.8 TIME OF OCCUPANCY

RESULT: Pass

5.1.9 CONDUCTED EMISSION ON AC MAINS

RESULT: Pass

6.1.1 ELECTROMAGNETIC FIELDS

RESULT: Pass

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1 General Remarks

1.1 Complementary Materials

All attachments are integral parts of this test report. This applies especially to the following appendix:

Appendix A: Photographs of the Test Set-up

Appendix B: Test Results

2 Test Sites

2.1 Test Facilities

TÜV Rheinland (Guangdong) Ltd.

No.102, 1F of Southwest and No.205, 2F No.767 Tianyuan Road, Tianhe District, Guangzhou 510663,
Guangdong Province P.R. China

FCC Accreditation Designation No.: CN1207

2.2 List of Test and Measurement Instruments

Table 1: List of Test and Measurement Equipment

For the measurement Equipment list, refer to the appendix B.

2.3 Traceability

All measurement equipment calibrations are traceable to NIM (National Institute of Metrology) or where calibration is performed in other countries, to equivalent nationally recognized standards organizations.

2.4 Calibration

Equipment requiring calibration is calibrated periodically by the manufacturer or according to manufacturer's specifications. Additionally all equipment is verified for proper performance on a regular basis using in house standards or comparisons.

2.5 Measurement Uncertainty

The estimated combined standard uncertainty for radiated emissions and conducted emissions measurements as below table.

Item		Extended Uncertainty
Conducted Emission		± 2.68 dB
Radiated Emission (30-1000MHz)	Field strength (dBµV/m)	± 5.16 dB
Radiated Emission (above 1000MHz)	Field strength (dBµV/m)	± 2.22 dB
Radio Spectrum		± 4.51 dB

2.6 Location of Original Data

The original copies of all test data taken during actual testing were attached at Appendix A & B of this report and delivered to the applicant. A copy has been retained in the TÜV Rheinland (Guangdong) Ltd. file for certification follow-up purposes.

2.7 Status of Facility Used for Testing

The TÜV Rheinland (Guangdong) Ltd. Test facility located at No.102, 1F of Southwest and No.205, 2F No.767 Tianyuan Road, Tianhe District, Guangzhou 510663, Guangdong Province P.R. China is listed on the US Federal Communications Commission list of facilities approved to perform measurements.

3 General Product Information

3.1 Product Function and Intended Use

The tested samples are "SMART HELMET" with model numbers as shown in the cover page of test report for new approval.

The remote control "GD01" can control LED lights of build-in the smart helmet "FT03" operating in 2438MHz. At the same time, the smart helmet supports BT4.1 wireless technologies for music play.

Therefore, full tests were performed on "FT03" for BT4.1 wireless technologies part.

For details refer to the User Manual, Technical Description and Circuit Diagram.

3.2 Ratings and System Details

Table 2: Technical Specification of EUT

General Information of EUT	Value
Kind of Equipment	SMART HELMET(MOON, BAABALI, SAFE TEC)
Type Designation	FT03
FCC ID	2AGSKML02-FT03
Operating Voltage	DC 3.7V via Li-ion Battery or DC 5.0V via USB port
Testing Voltage	DC 3.7V
Technical Specification of Bluetooth 4.1 (Single mode)	
Operating Frequency	2402 - 2480 MHz
Type of Modulation	GFSK, 8DPSK, $\pi/4$ DQPSK
Channel Number	79 channels
Channel Separation	1 MHz
Antenna Type	Integral Antenna
Gain	0 dBi

Table 3: RF Channel and Frequency of General 2.4GHz

RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)	RF Channel	Frequency (MHz)
0	2402.00	20	2422.00	40	2442.00	60	2462.00
1	2403.00	21	2423.00	41	2443.00	61	2463.00
2	2404.00	22	2424.00	42	2444.00	62	2464.00
3	2405.00	23	2425.00	43	2445.00	63	2465.00
4	2406.00	24	2426.00	44	2446.00	64	2466.00
5	2407.00	25	2427.00	45	2447.00	65	2467.00
6	2408.00	26	2428.00	46	2448.00	66	2468.00
7	2409.00	27	2429.00	47	2449.00	67	2469.00

8	2410.00	28	2430.00	48	2450.00	68	2470.00
9	2411.00	29	2431.00	49	2451.00	69	2471.00
10	2412.00	30	2432.00	50	2452.00	70	2472.00
11	2413.00	31	2433.00	51	2453.00	71	2473.00
12	2414.00	32	2434.00	52	2454.00	72	2474.00
13	2415.00	33	2435.00	53	2455.00	73	2475.00
14	2416.00	34	2436.00	54	2456.00	74	2476.00
15	2417.00	35	2437.00	55	2457.00	75	2477.00
16	2418.00	36	2438.00	56	2458.00	76	2478.00
17	2419.00	37	2439.00	57	2459.00	77	2479.00
18	2420.00	38	2440.00	58	2460.00	78	2480.00
19	2421.00	39	2441.00	59	2461.00	/	/

Test frequencies are lowest channel: 2402 MHz, middle channel: 2441 MHz and highest channel: 2480 MHz.

Table 4: Frequency Hopping Information

Technical Specification	Description
Hopping Range	Hereby we declare that the frequency range of this device is: 2402-2480MHz. This is according the Bluetooth Core Specification V4.1 (single mode) for devices which will be operated in the USA. This was checked during the Bluetooth Qualification tests (Test Case: TRM/CA/04-E).
Hopping Sequence	Example of a 79 hopping sequence in data mode: 33,04,21,44,23,42,53,46,55,48,40,59,72,29,76,31,08,73,07,75,09,45,60,39,58,13,47,11,77,52,35,50,65,54,67,56,69,62,71,64, 7,25,27,66,57,70,74,61,78,63,10,41,05,43,15,44,64,68,02,70,06,01,51,03,55,05,03,66,53,49,36,47,
Receiver input bandwidth	The input bandwidth of the receiver is 1MHz. In every connection one Bluetooth device is the master and the other one is the slave. The master determines the hopping sequence. The slave follows this sequence. Both devices shift between RX and TX time slot according to the clock of the master. Additionally the type of connection is set up at the beginning of the connection. The master adapts its hopping frequency and its TX/RX timing according to the packet type of the connection. Also the slave of the connection will use these settings. Repeating of a packer has no influence on the hopping sequence. The hopping sequence generated by the master of the connection will be followed in any case. That means a repeated packet will not be send on the same frequency, it is send on the next frequency of the hopping sequence.

3.3 Independent Operation Modes

The basic operation modes are:

- A. On, Traditional Bluetooth
 - 1. Low channel
 - 2. Middle channel
 - 3. High channel
- B. On, Traditional Bluetooth on Hopping channel
- C. On, Normal operation mode
- D. Off

3.4 Noise Generating and Noise Suppressing Parts

Refer to Circuit Diagram for further details.

3.5 Submitted Documents

- | | |
|----------------------------------|------------------|
| - Application Form | - Photo Document |
| - Block Diagram | - Schematics |
| - FCC/IC Label and Location Info | - User Manual |
| - Operation Description | |

4 Test Set-up and Operation Modes

4.1 Principle of Configuration Selection

Radio Spectrum: The equipment under test (EUT) was configured at its highest power output in order to measure its highest possible radiation and conducted level. The test modes were adapted accordingly in reference to the instructions for use.

Emission: The equipment under test (EUT) was configured to measure its highest possible radiation level. The test modes were adapted accordingly in reference to the instructions for use.

4.2 Test Operation and Test Software

Test operation refers to test setup in chapter 5. All tests were performed according to the procedures in ANSI C63.10: 2013.

According to clause 3.1, all tests were performed on model FT03 in this report.

4.3 Special Accessories and Auxiliary Equipment

Table 5: List of Accessories and Auxiliary Equipment

Description	Manufacturer	Model	S/N	Rating
Notebook	Lenovo	E46A	EB24320428	N/A
iPhone	Apple	A1586	/	N/A

4.4 Countermeasures to Achieve EMC Compliance

The test sample which has been tested contained the noise suppression parts as described in the Technical Construction File (TCF).

No additional measures were employed to achieve compliance.

4.5 Test Setup Diagram

Diagram of Measurement Configuration for Radiation Test (Below 1GHz)

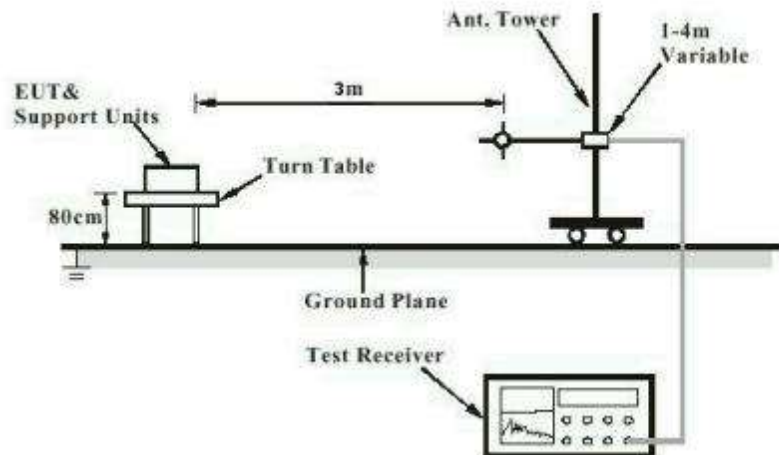


Diagram of Measurement Configuration for Radiation Test (Above 1GHz)

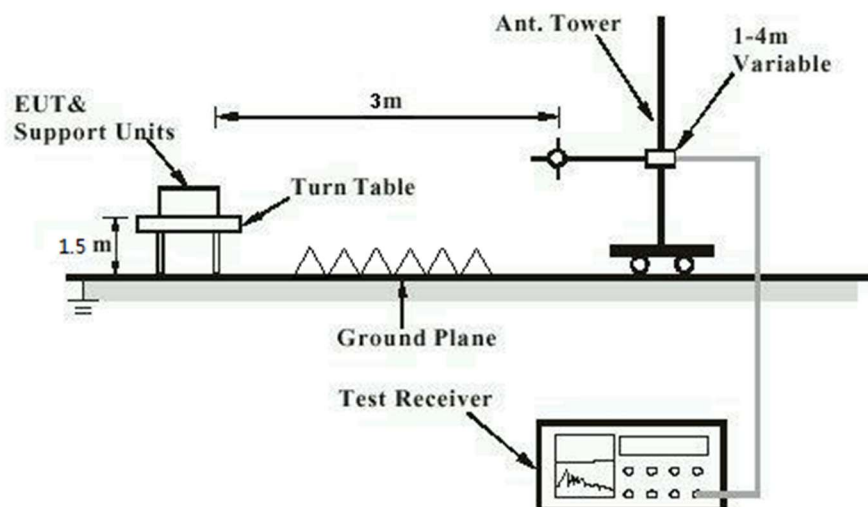


Diagram of Measurement Configuration for Mains Conduction Measurement

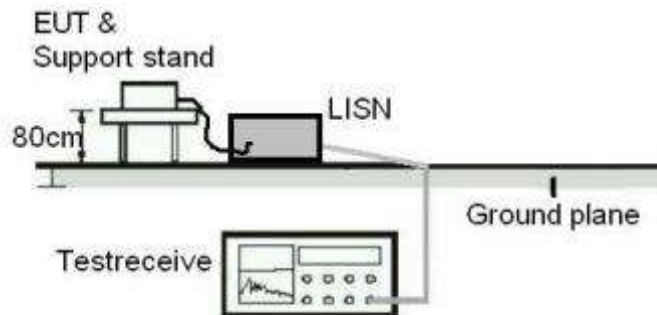
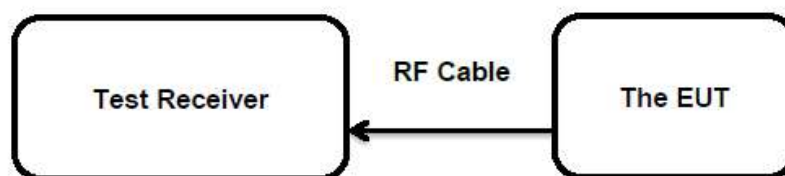


Diagram of Measurement Configuration for Conducted Transmitter Measurement



5 Test Results

5.1 Transmitter Requirement & Test Suites

5.1.1 Antenna Requirement

RESULT:**Pass****Test Specification**

Test standard : FCC Part 15.247(b)(4) and Part 15.203

According to the manufacturer declared, the EUT has one internal antenna, the directional gain of antenna is 0dBi, and the antenna connector is designed with permanent attachment and no consideration of replacement. Therefore the EUT is considered sufficient to comply with the provision.

Therefore the EUT is considered sufficient to comply with the provision.

Refer to EUT Photo for further details.

5.1.2 Maximum Peak Conducted Output Power

RESULT:
Pass
Test Specification

Test standard	: FCC Part 15.247(b)(1)&(3)
Basic standard	: ANSI C63.10: 2013
Limits	: FHSS < 0.125 Watts
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 30.08.2019
Input voltage	: DC 3.7V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24 °C
Relative humidity	: 50 %
Atmospheric pressure	: 101 kPa

For details refer to following test result.

Table 6: Test Result of Maximum Peak Conducted Output Power

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(mW)	
BDR	2402	-1.79	0.662	< 0.125
	2441	-2.28	0.592	
	2480	-2.76	0.530	
Maximum Measured Value		-1.79	0.662	

Test Mode	Test Channel (MHz)	Measured Peak Power		Limit (W)
		(dBm)	(mW)	
EDR	2402	-2.29	0.590	< 0.125
	2441	-1.89	0.647	
	2480	-2.34	0.583	
Maximum Measured Value		-1.89	0.647	

Note:

- 1) The cable loss is taken into account in results.
- 2) Antenna gain(G) of FHSS: 0dBi,
The Maximum peak conducted output power (e.i.r.p.)= $P_{(Peak\ power)} + G$, which is far below the 4 W

5.1.3 Conducted Spurious Emissions Measured in 100 kHz Bandwidth**RESULT:****Pass****Test Specification**

Test standard	: FCC Part 15.247(d)
Basic standard	: ANSI C63.10: 2013
Limits	: 20dB (below that in the 100kHz bandwidth within the band that contains the highest level of the desired power); In addition, radiated emissions which fall in the restricted bands, must also comply with the radiated emission limits specified in 15.209(a)
Kind of test site	: Shielded Room

Test Setup

Date of testing	: 30.08.2019
Input voltage	: DC 3.7V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 24 °C
Relative humidity	: 50 %
Atmospheric pressure	: 101 kPa

Test results of 100kHz Bandwidth of Frequency Band Edge by Conducted method refer to test plots, and compliance is achieved as well.

For the measurement records, refer to the appendix B.

5.1.4 Radiated Spurious Emission

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.247(d) & FCC Part 15.205
Basic standard	: ANSI C63.10: 2013
Limits	: Refer to 15.209(a) of FCC part 15.247(d) RSS-Gen Issue 4 Table 4
Kind of test site	: 3m Semi-anechoic Chamber

Test Setup

Date of testing	: Refer to test result
Input voltage	: DC 3.7V
Operation mode	: A
Test channel	: Low / Middle / High
Ambient temperature	: 22 °C
Relative humidity	: 53 %
Atmospheric pressure	: 101 kPa

Remark:

Testing was carried out within frequency range 9kHz to the tenth harmonics. Only the worst case spurious emissions configuration of the each mode were reported.

For the measurement records, refer to the appendix B.

5.1.5 20dB Bandwidth

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(a)(1)
 Basic standard : ANSI C63.10: 2013
 Kind of test site : Shielded Room

Test Setup

Date of testing : 30.08.2019
 Input voltage : DC 3.7V
 Operation mode : A
 Test channel : Low / Middle / High
 Ambient temperature : 24 °C
 Relative humidity : 50 %
 Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 7: Test Result of 20dB Bandwidth, General 2.4GHz

Test Mode	Test Channel (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
BDR	2402	973.00	648.667	/
	2441	1023.00	682.000	
	2480	989.00	659.333	
Maximum Measured Value		1023.00	682.000	

Test Mode	Test Channel (MHz)	20dB Bandwidth (kHz)	2/3 of 20dB Bandwidth (kHz)	Limit (MHz)
EDR	2402	1494.00	996.000	/
	2441	1332.00	888.000	
	2480	1302.00	868.000	
Maximum Measured Value		1494.00	996.000	

5.1.6 Carrier Frequency Separation

RESULT:
Pass
Test Specification

Test standard : FCC Part 15.247(a)(1)
 Basic standard : ANSI C63.10: 2013
 Limits : $\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth, whichever is greater
 Kind of test site : Shielded Room

Test Setup

Date of testing : 30.08.2019
 Input voltage : DC 3.7V
 Operation mode : C
 Test channel : Low / Middle / High
 Ambient temperature : $24\text{ }^{\circ}\text{C}$
 Relative humidity : 50 %
 Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 8: Test Result of Carrier Frequency Separation, General 2.4GHz

Test Mode	Test Channel	Test Channel (MHz)	Measured Channel Separation (KHz)	Limit (kHz)
BDR	Adjacency Channel	2440	1026.0	$\geq 25\text{kHz}$ or $2/3$ of 20dB bandwidth
	Middle Channel	2441	/	
	Adjacency Channel	2442	978.0	
EDR	Adjacency Channel	2440	1026.0	
	High Channel	2441	/	
	Adjacency Channel	2442	978.0	

Note: The limit is maximum $2/3$ of the 20 dB bandwidth: 682.000 KHz .

5.1.7 Number of Hopping Frequency

RESULT:**Pass****Test Specification**

Test standard : FCC part 15.247(a)(1)(iii)
Basic standard : ANSI C63.10: 2013
Limits : ≥ 15 non-overlapping channels
Kind of test site : Shielded Room

Test Setup

Date of testing : 30.08.2019
Input voltage : DC 3.7V
Operation mode : C
Ambient temperature : 24 °C
Relative humidity : 50 %
Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 9: Test Result of Number of Hopping Frequency, General 2.4GHz

Test Mode	Frequency Range	Measured Quantity of Hopping Channel	Limit
FHSS	2402 - 2480 MHz	79	≥ 15

5.1.8 Time of Occupancy

RESULT:
Pass
Test Specification

Test standard : FCC part 15.247(a)(1)(iii)
 Basic standard : ANSI C63.10: 2013
 Limits : < 0.4s
 Kind of test site : Shielded Room

Test Setup

Date of testing : 29.08.2019
 Input voltage : DC 3.7V
 Operation mode : B
 Test channel : Low / Middle / High
 Ambient temperature : 24 °C
 Relative humidity : 50 %
 Atmospheric pressure : 101 kPa

For details refer to following test result.

Table 10: Test Result of Time of Occupancy

Test Mode	Test Channel (MHz)	Pulse Width(ms)	Number of Channels	Measured Dwell Time(s)	Limit (s)
BDR	2402	2.970	110	0.327	0.4s
	2441	2.970	110	0.327	
	2480	2.970	110	0.327	

Test Mode	Test Channel (MHz)	Pulse Width(ms)	Number of Channels	Measured Dwell Time(s)	Limit (s)
EDR	2402	2.920	110	0.321	0.4s
	2441	2.920	110	0.321	
	2480	2.920	110	0.321	

Note:

Dwell time = Pulse width x Number of channels in Period

Period = 0.4 (seconds/ channel) x 79 (channel) = 31.6 seconds

Pre-test the different type of Modulation for this test. Only the worst case BDR (DH5 packet) and EDR (3DH5 packet) were recorded in this report.

5.1.9 Conducted Emission on AC Mains

RESULT:**Pass****Test Specification**

Test standard	: FCC Part 15.207(a)
Basic standard	: ANSI C63.10: 2013
Frequency range	: 0.15 – 30MHz
Limits	: FCC Part 15.207(a) RSS-Gen Table 3
Kind of test site	: Shielded Room

Test Setup

Date of testing	: Refer to test result
Input voltage	: DC 3.7V (supplied by external adaptor)
Operation mode	: C
Earthing	: Not connected
Ambient temperature	: 25 °C
Relative humidity	: 56 %
Atmospheric pressure	: 101 kPa

For the measurement records, refer to the appendix B.

6 Safety Human Exposure

6.1 Radio Frequency Exposure Compliance

6.1.1 Electromagnetic Fields

RESULT:**Pass****Test Specification**

Test standard : CFR47 FCC Part 2: Section 2.1091
CFR47 FCC Part 1: Section 1.1310
FCC KDB Publication 447498 D01 v06

The minimum distance for the EUT is less than 5mm.
Since maximum peak output power of the transmitter is 0.662 mW <10 mW.

Hence the EUT is excluded from SAR evaluation according to FCC KDB Publication 447498 D01 General RF Exposure Guidance v06.

7 Photographs of the Test Set-Up

For photographs of the test set-up, refer to the appendix A.

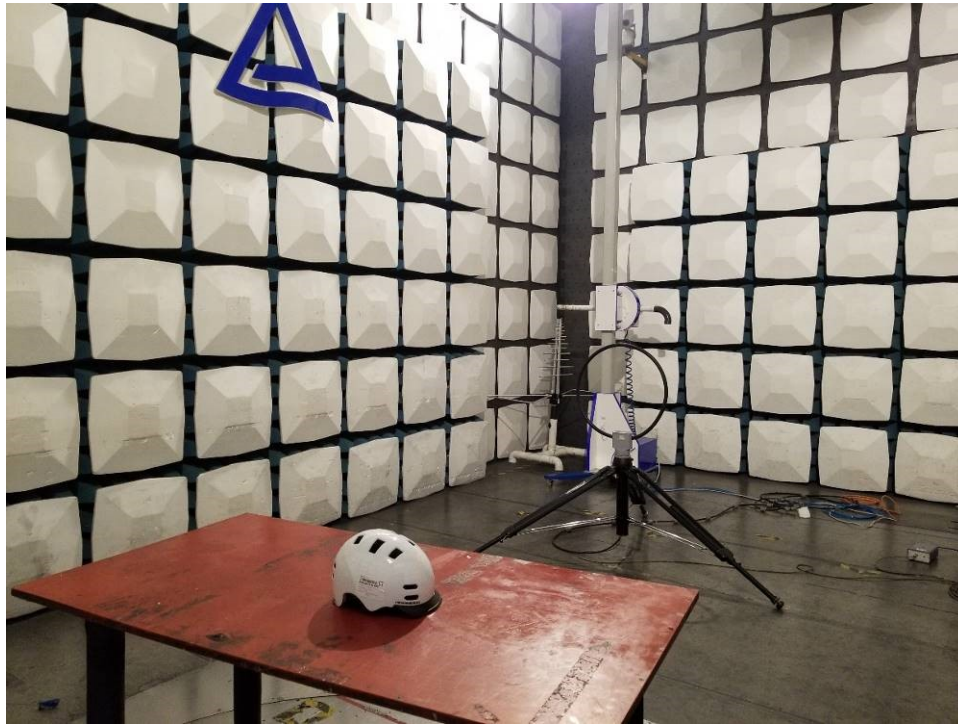
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Appendix A: Photographs of the Test Set-Up

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Photograph 1: Set-up for Radiated Spurious Emission, 9KHz - 30MHz



Photograph 2: Set-up for Radiated Spurious Emission, 30MHz - 1GHz



Photograph 3: Set-up for Radiated Spurious Emission, 1GHz - 18GHz



Photograph 4: Set-up for Radiated Spurious Emission, 18GHz - 26.5GHz



Photograph 5: Set-up for Conducted Emission on AC Mains



Appendix B: Test Results

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Appendix B.1: Measurement Equipment List



Measurement Equipment List

Testing Start Date 17.06.2019
Testing end date 25.06.2019

Project Manager
Cost Center
Test Report Number
Order Item Number

Customer

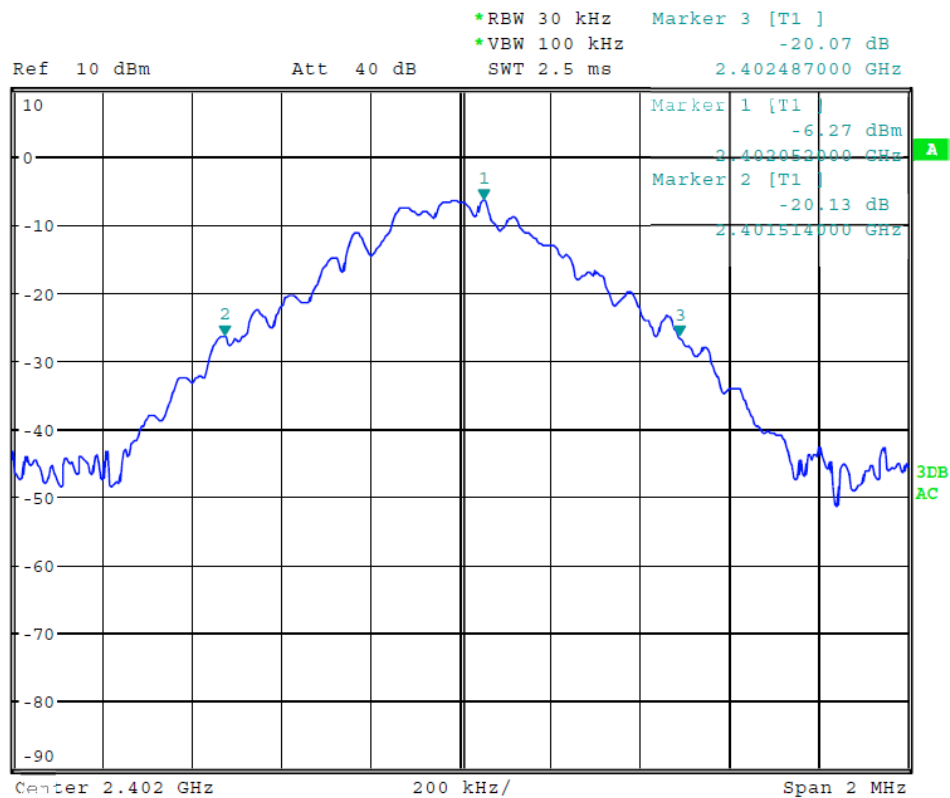
Comment

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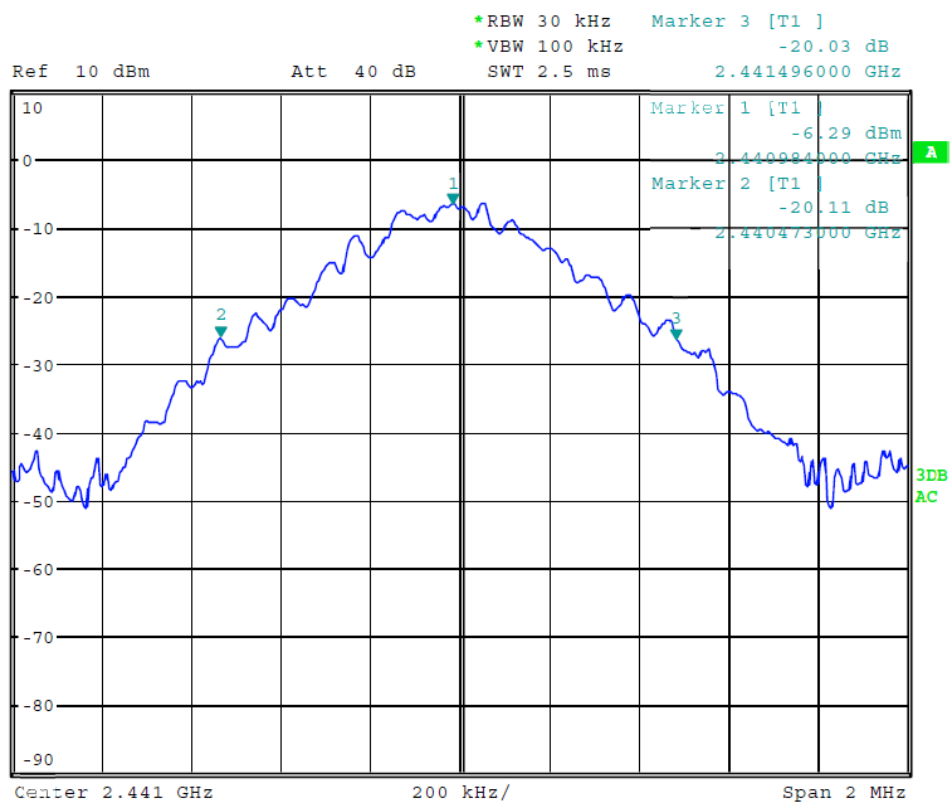
Old ID	Equip.	Description	Model	Manufacturer	Inte. (mon)	Due Date DD.MM.YYYY
1.887	1813944	EMI Test Receiver	ESCI	Rohde & Schwarz	12	15.03.2020
1.886	1813943	Two-Line V-Network	ENV216	Rohde & Schwarz	12	24.05.2020
1.807	1813832	EMI Test Receiver	ESCI	Rohde & Schwarz	12	14.03.2020
1.805	1813829	FSP30 Spectrum Analyzer	FSP30	Rohde & Schwarz	12	15.08.2020
1.921B	1814142	Trilog Broadband Antenna	VULB9168(6dB)	SCHWARZBECK	24	20.09.2019
1.822	1813850	Loop Antenna	HFH2-Z2	Rohde & Schwarz	24	15.03.2021
1.889C	1814199	Double-Ridged Horn Antenna	HF907(3##	Rohde & Schwarz	24	23.10.2020
1.808	1813833	Horn Antenna	3160-09	EMCO	60	19.01.2024
1.819C	1814068	Pre-Amplifier	A44-00101800-25-10P-	MITEQ	12	08.05.2020
1.819A	1813846	Band Reject Filter	BRM50702	Micro-Tronics	24	04.07.2020
1.808A	1813834	Pre-Amplifier	A33-18002650-30-8P-4	MITEQ	24	29.07.2021
1.666	1813697	SAC	N/A	Albatross Project	36	27.11.2021
1.913	1814012	Shielding Room	9x4x3.4	Changzhou Yuanping	60	06.12.2020
3.769	1814017	Regulated power supply	APS-33045TT	APS	12	15.07.2020
3.765	1814004	Frequency Invertor	APW-1100N	APE	12	15.07.2020
3.770	1814018	Regulated power supply	APS-11020	APS	12	15.07.2020
3.647	1822646	Stable Power Supply	APS-11010GG	APS	12	15.07.2020
1.844	1813877	Automatic Voltage Regulator	AFR-345	Allpower	12	26.04.2020
3.648	1822647	Frequency Invertor	CIF-5000A	IDRC	12	15.07.2020
1.803C	1822648	Artificial Mains Network	LT32C/10	AFJ	12	30.07.2020
1.923B	1825388	EMI Test Receiver	ESR7	Rohde & Schwarz	12	08.04.2020
1.657N	1825384	Power Meter	NRX	Rohde & Schwarz	12	08.04.2020
1.657O	1825385	Average Power Sensor	NRP6A	Rohde & Schwarz	12	08.04.2020
1.657P	1825386	Average Power Sensor	NRP6A	Rohde & Schwarz	12	08.04.2020

Appendix B.2: 20dB Bandwidth

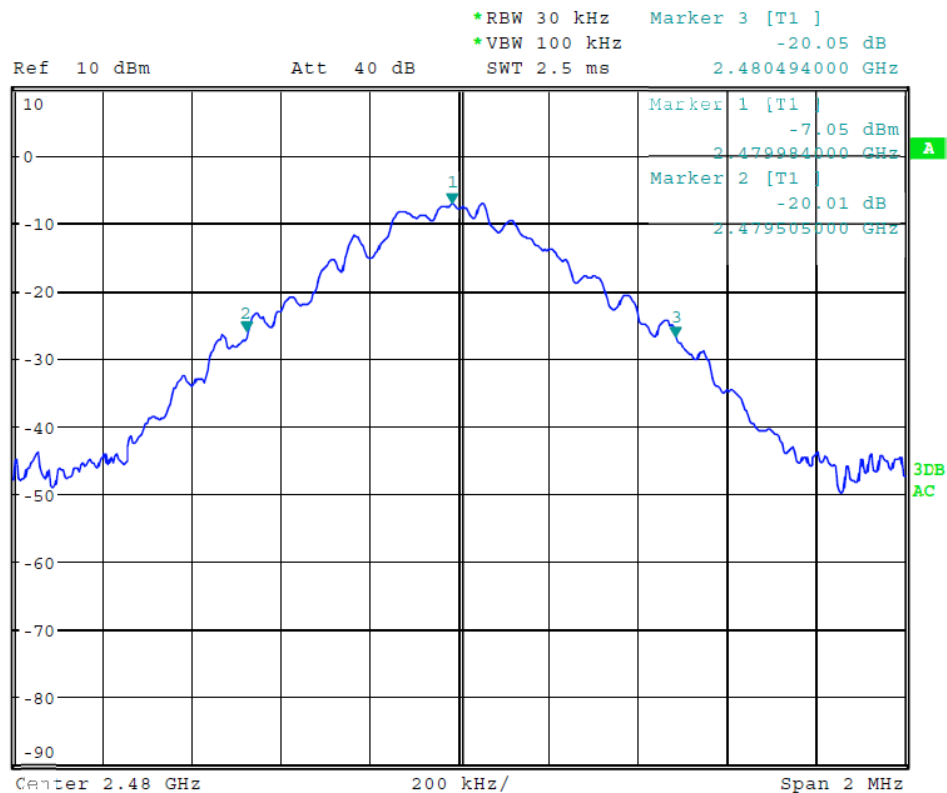
Low Channel of BDR mode



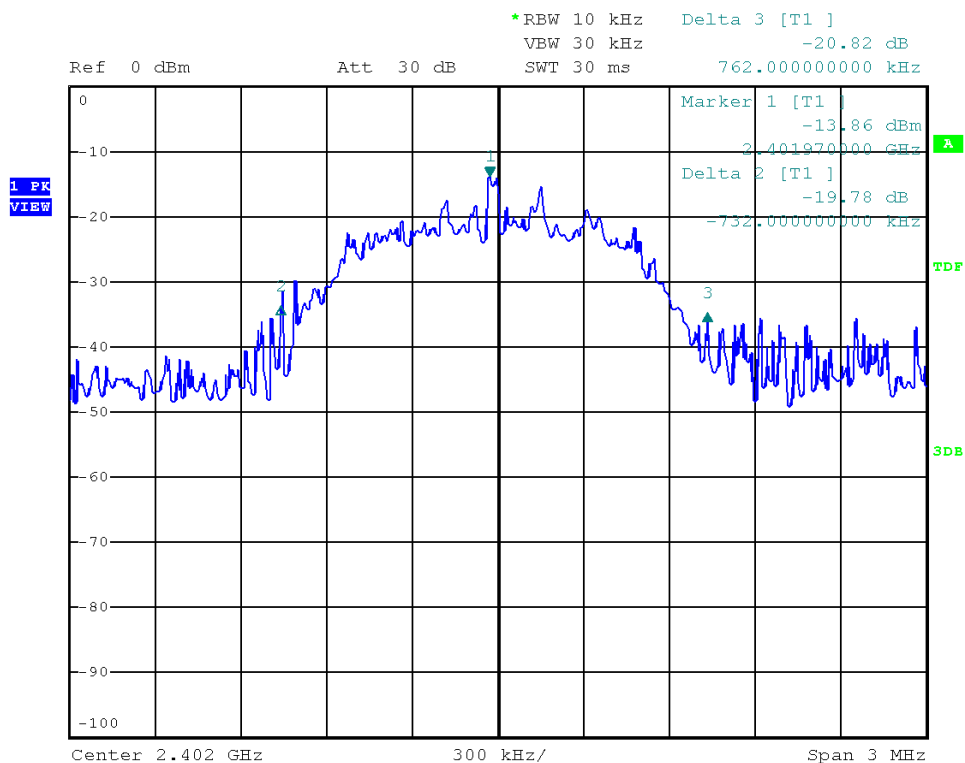
Middle Channel of BDR mode



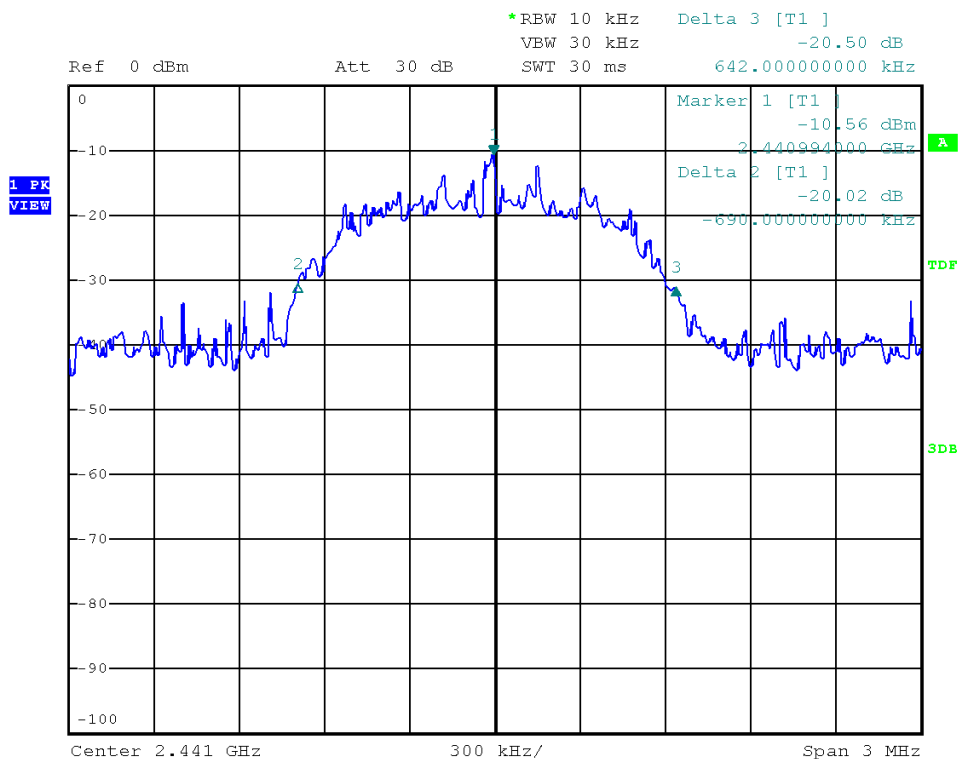
High Channel of BDR mode



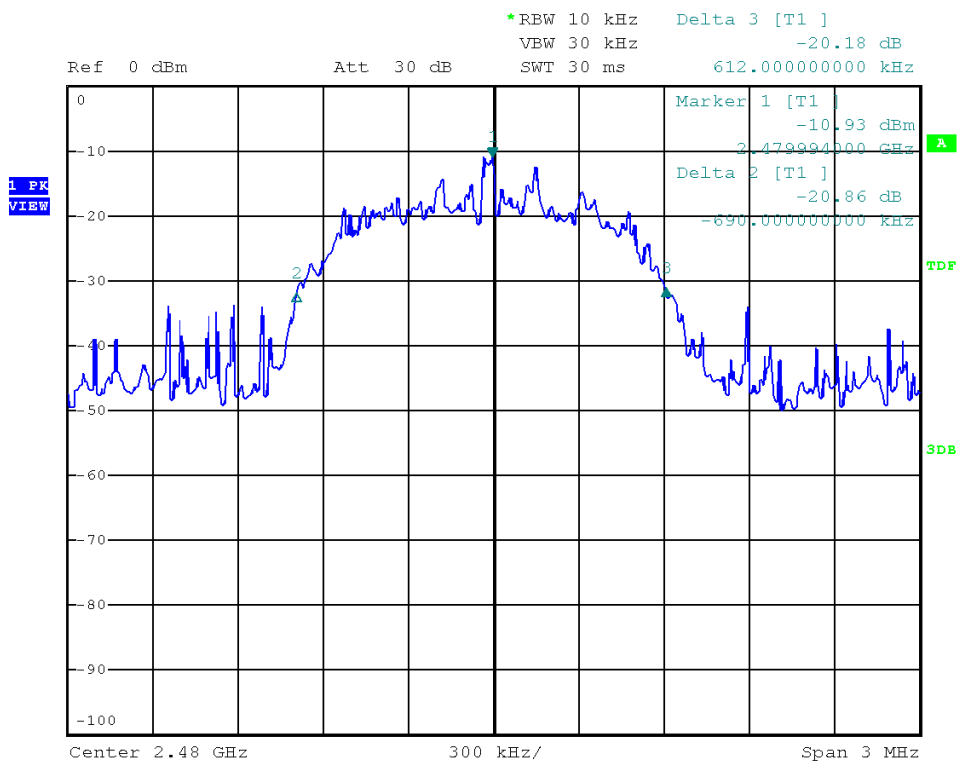
Low Channel of EDR mode



Middle Channel of EDR mode

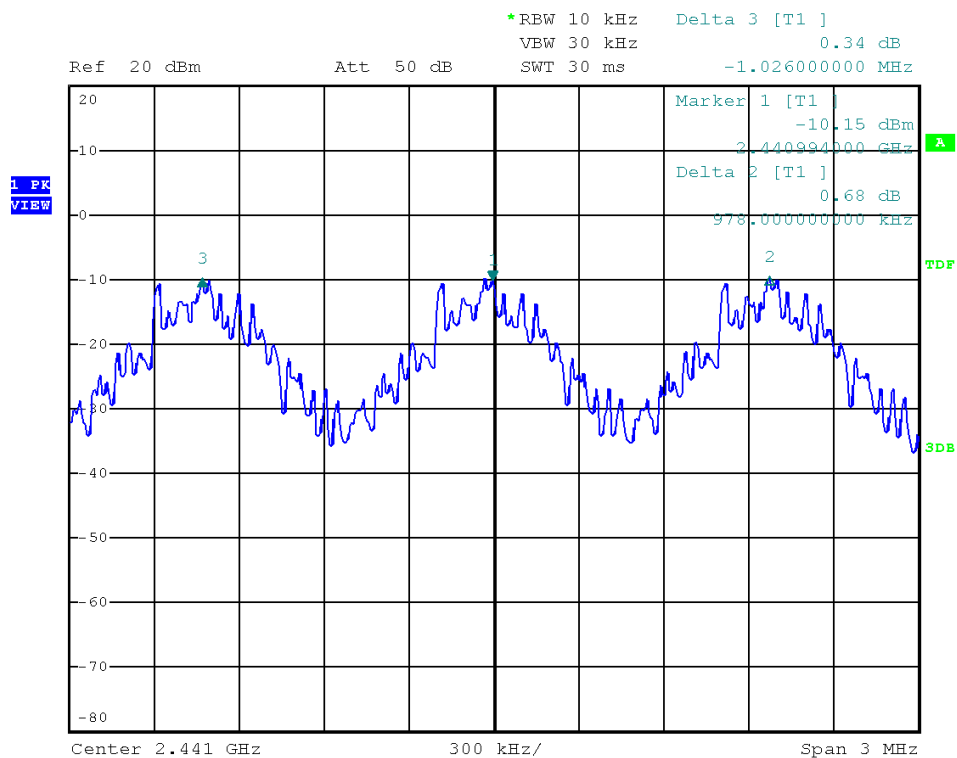


High Channel of EDR mode

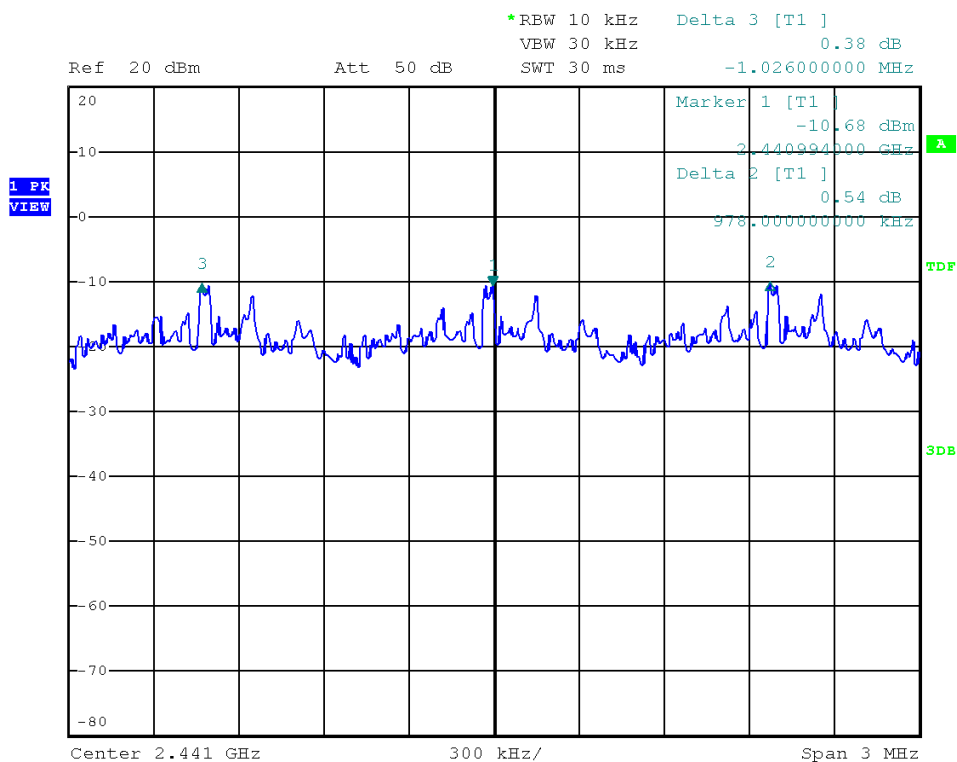


Appendix B.3: Carrier Frequency Separation

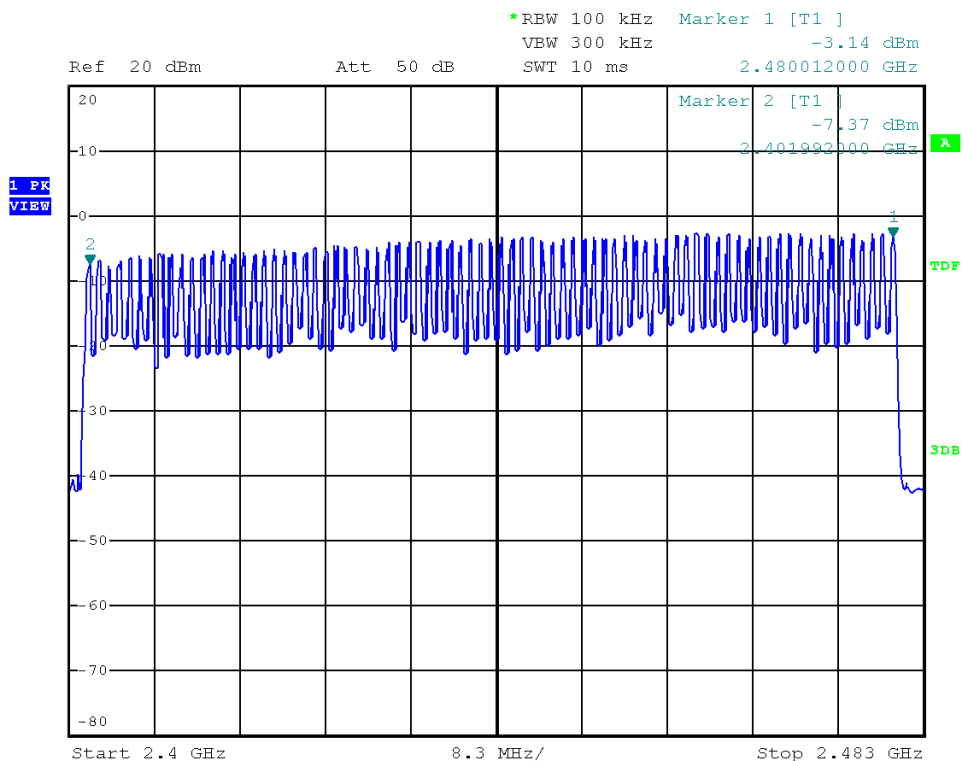
BDR mode



EDR mode

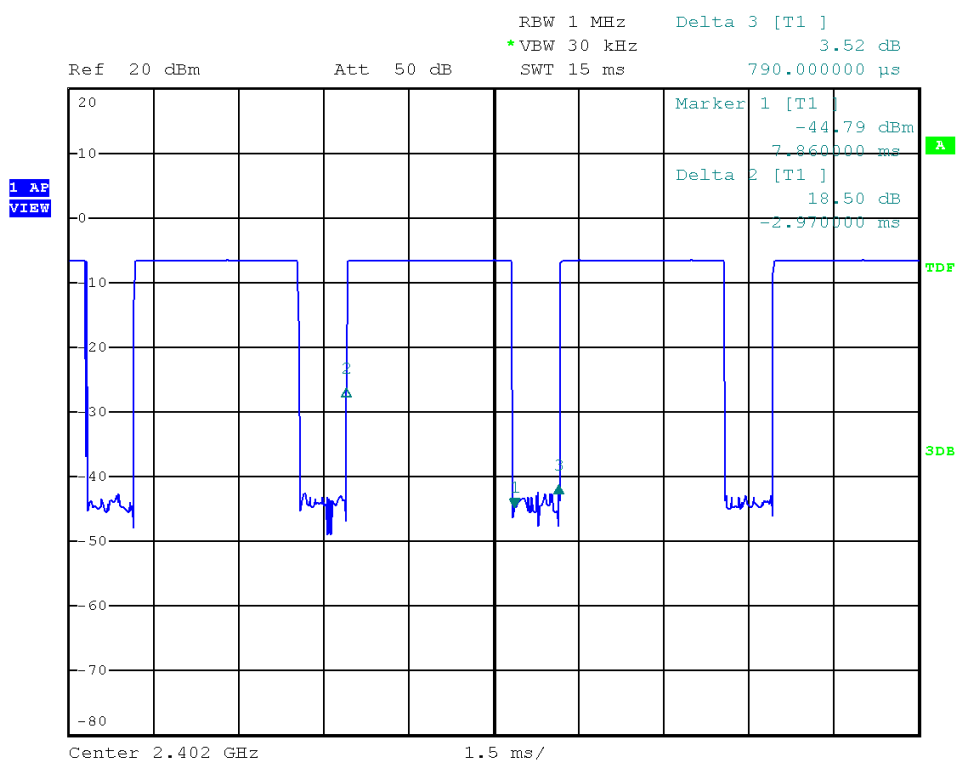


Appendix B.4: Number of Hopping Frequency

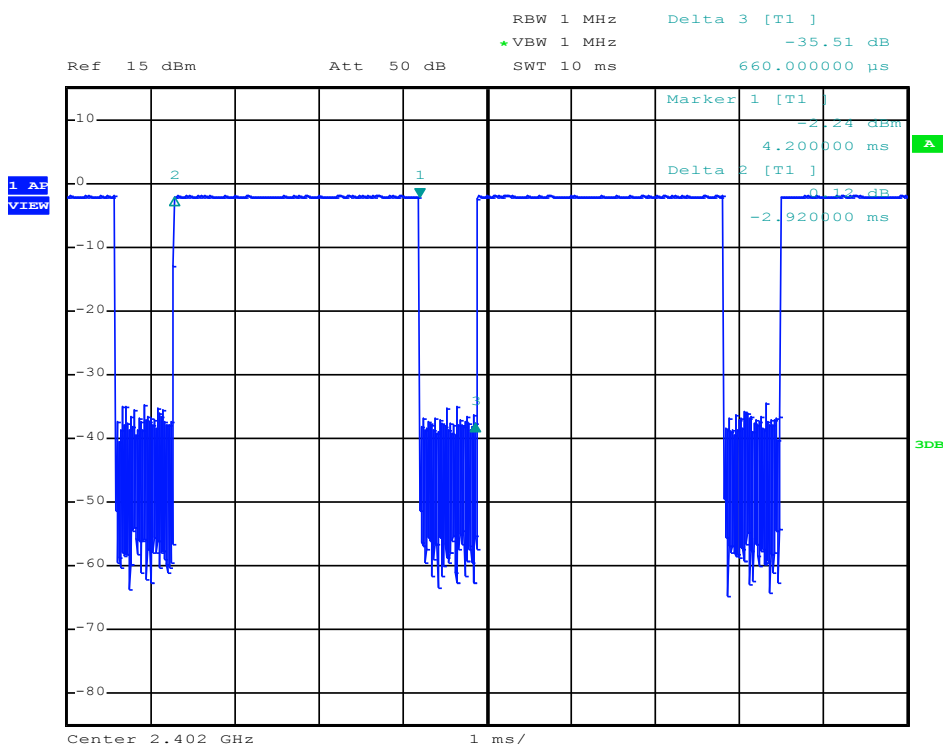


Appendix B.5: Time of Occupancy

BDR mode

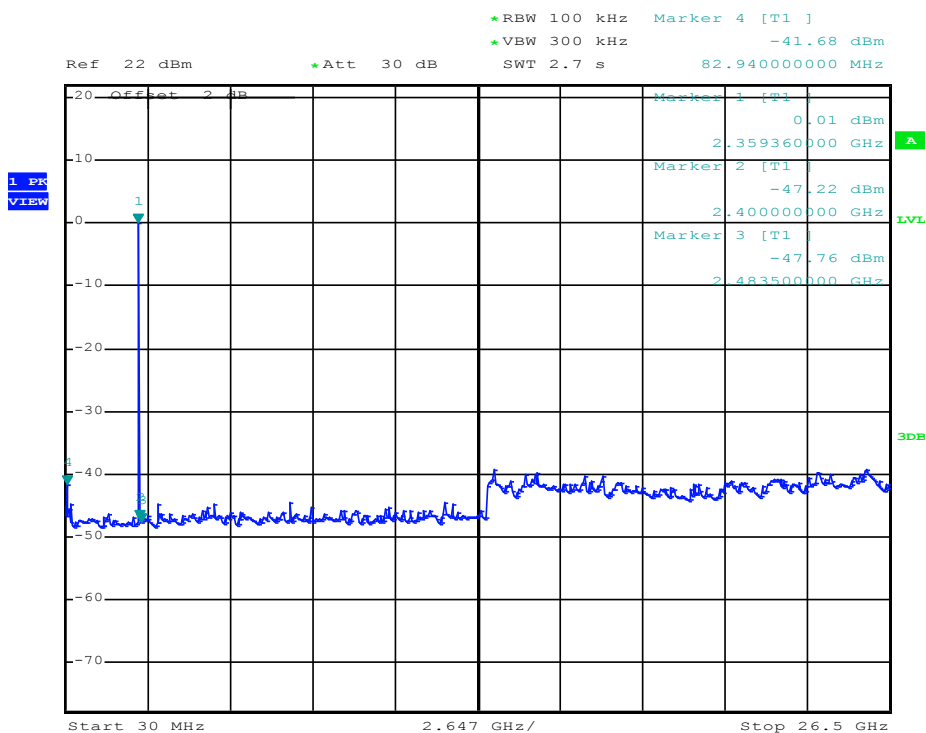


EDR mode

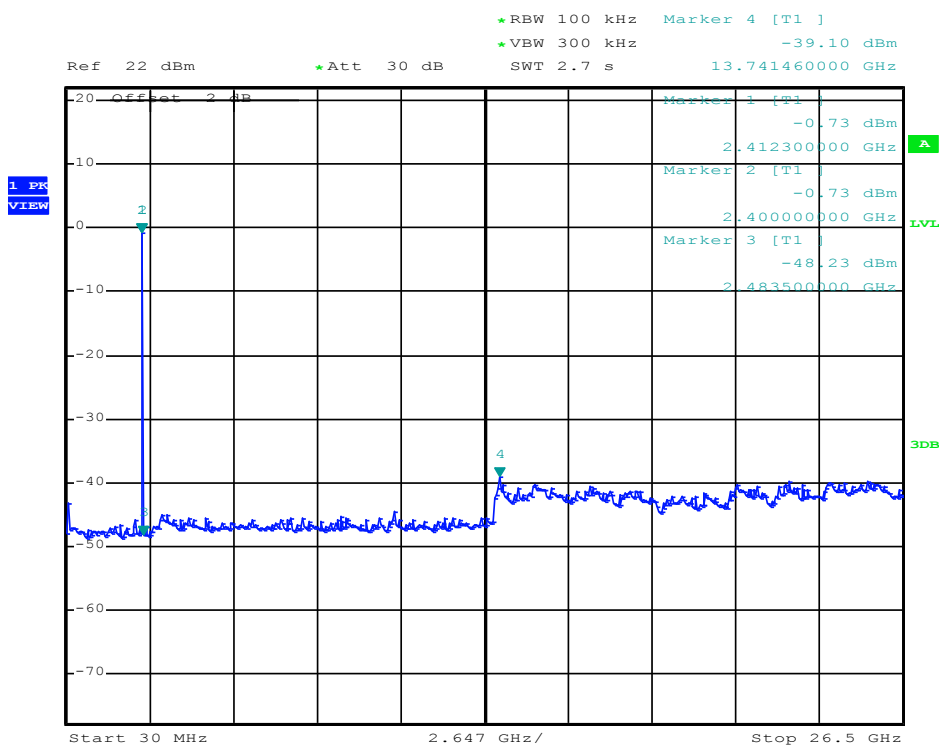


Appendix B.6: Conducted Spurious Emissions Measured in 100 kHz Bandwidth

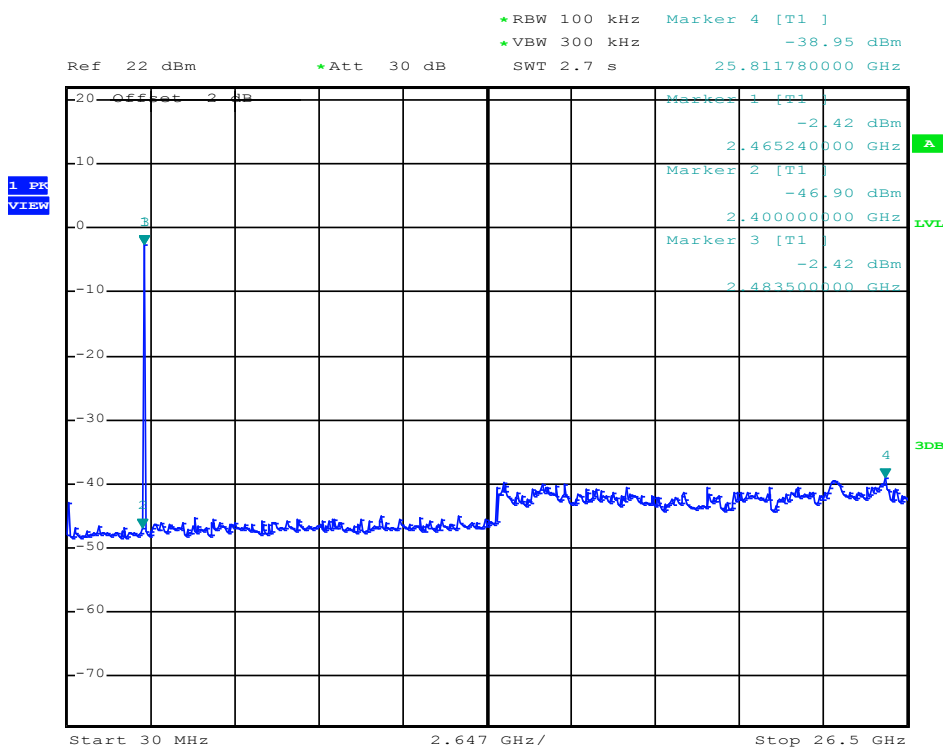
Low Channel of BDR mode



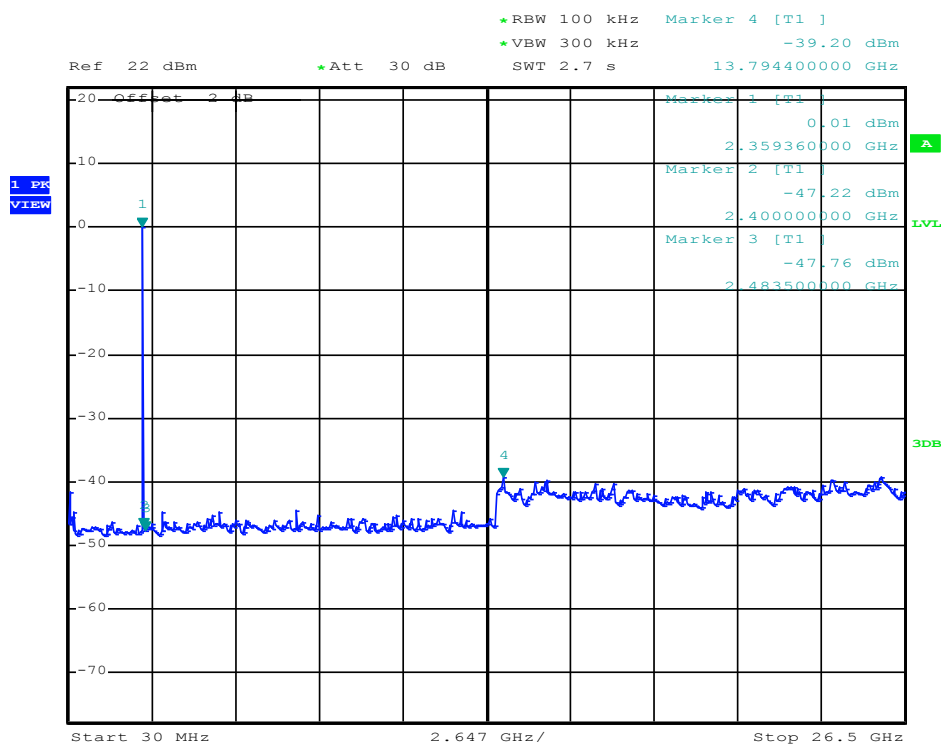
Middle Channel of BDR mode



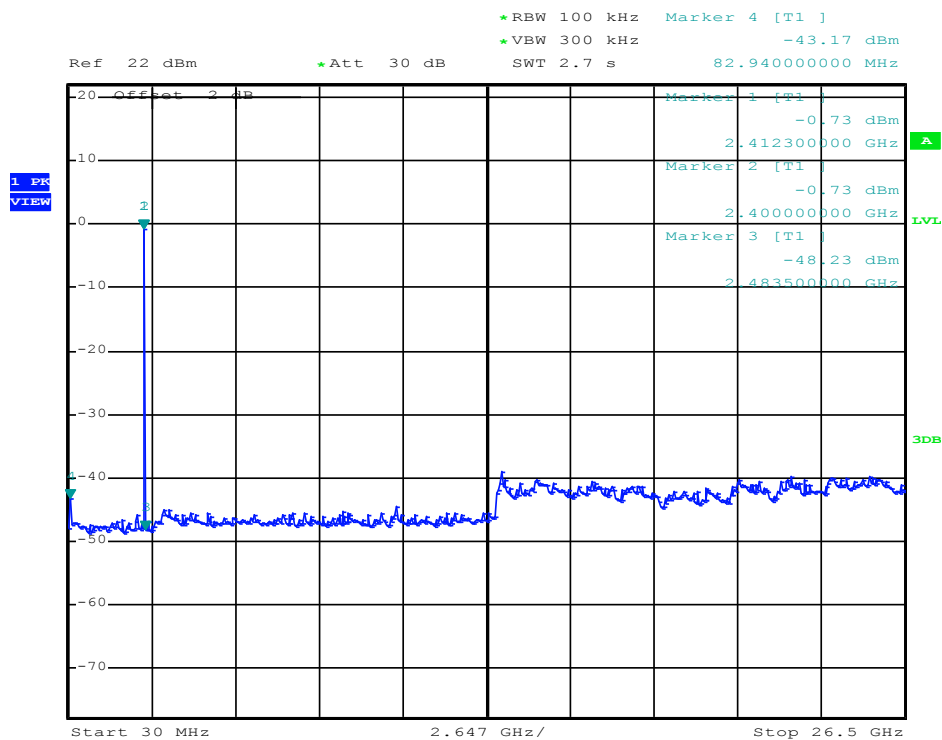
High Channel of BDR mode



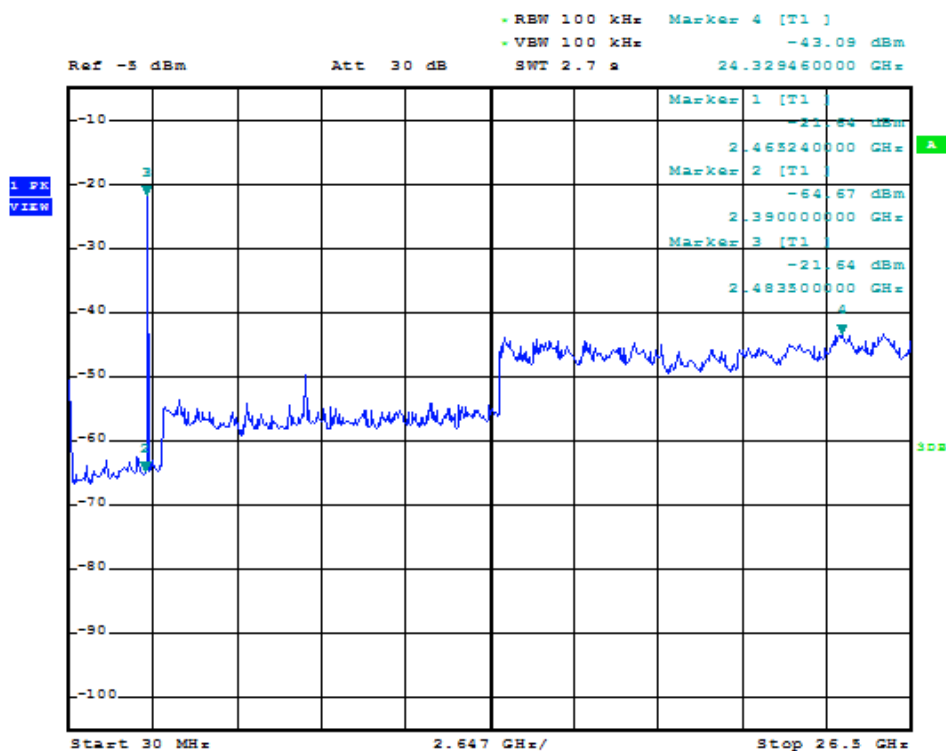
Low Channel of EDR mode



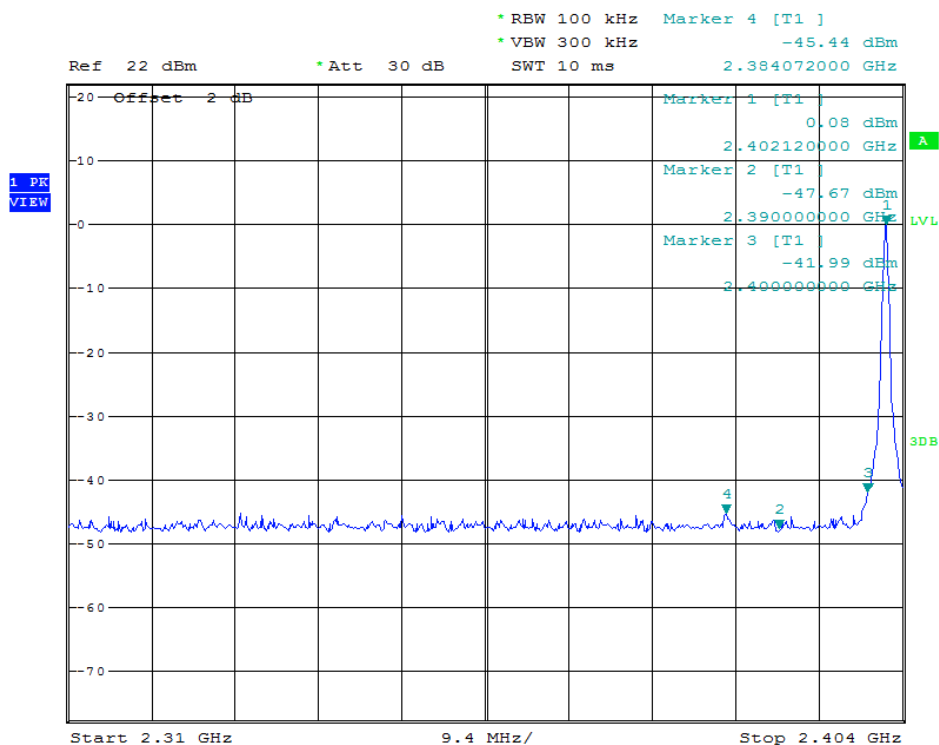
Middle Channel of EDR mode



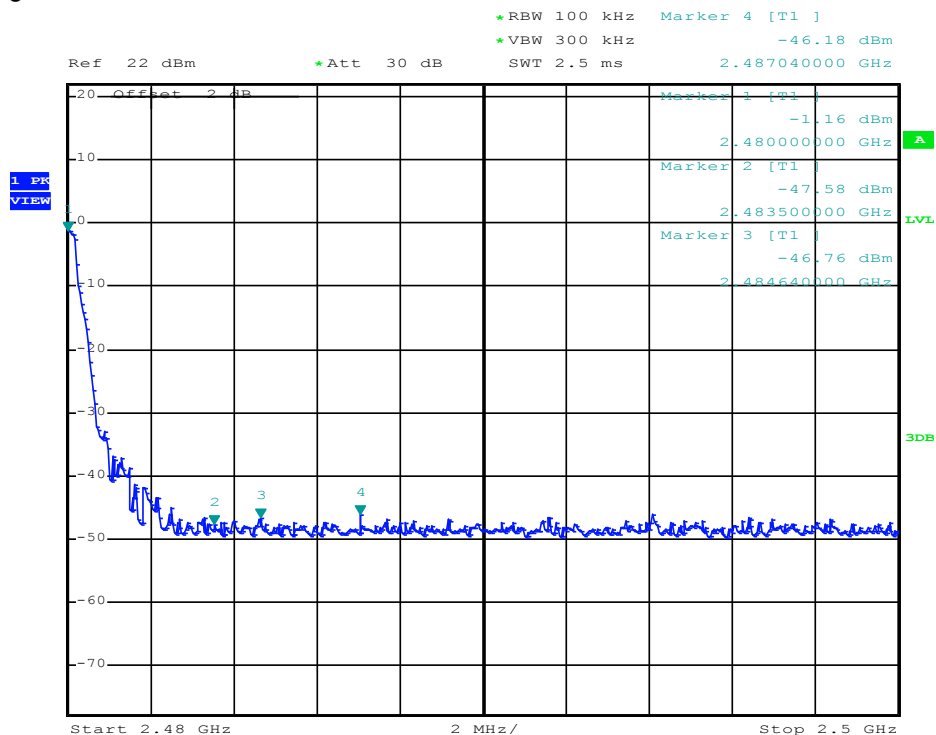
High Channel of EDR mode



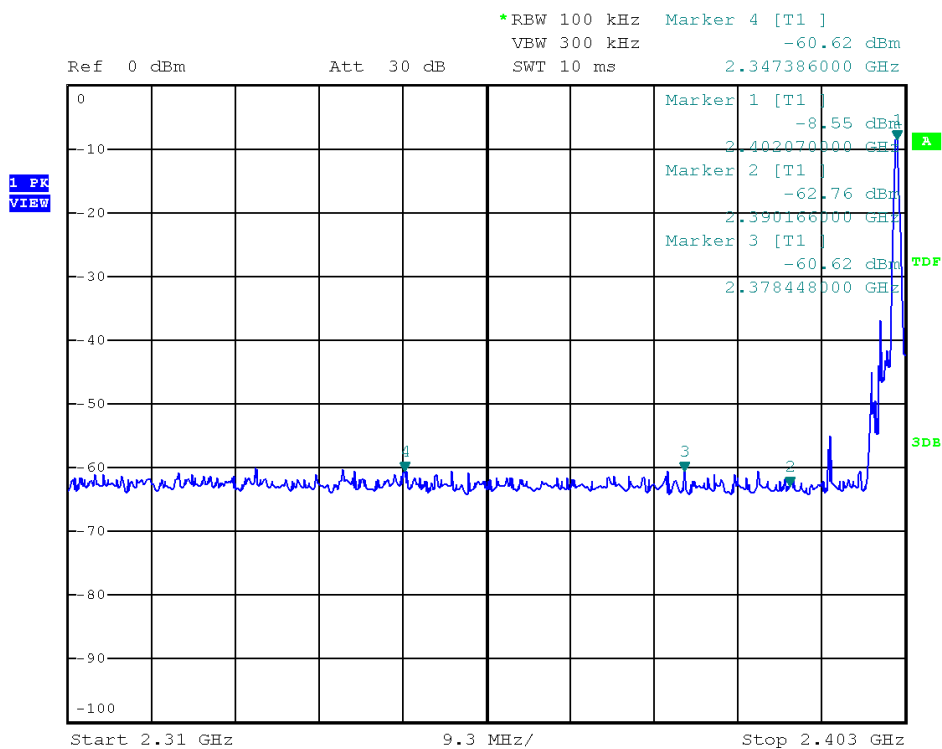
Band Edge, Low Channel of BDR mode



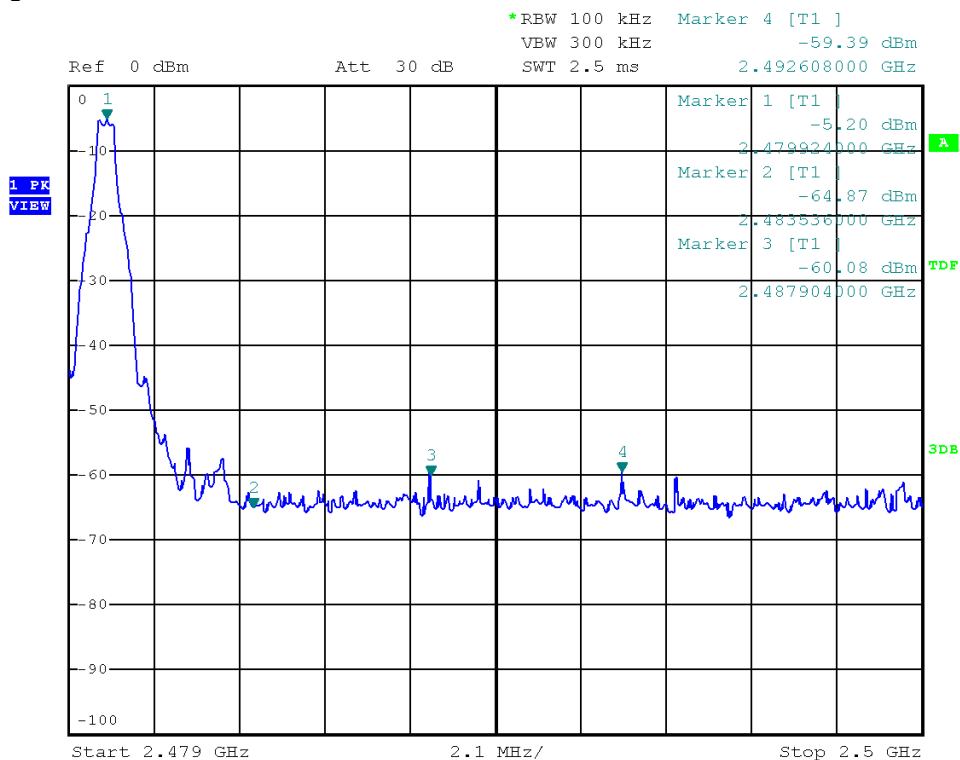
Band Edge, High Channel of BDR mode



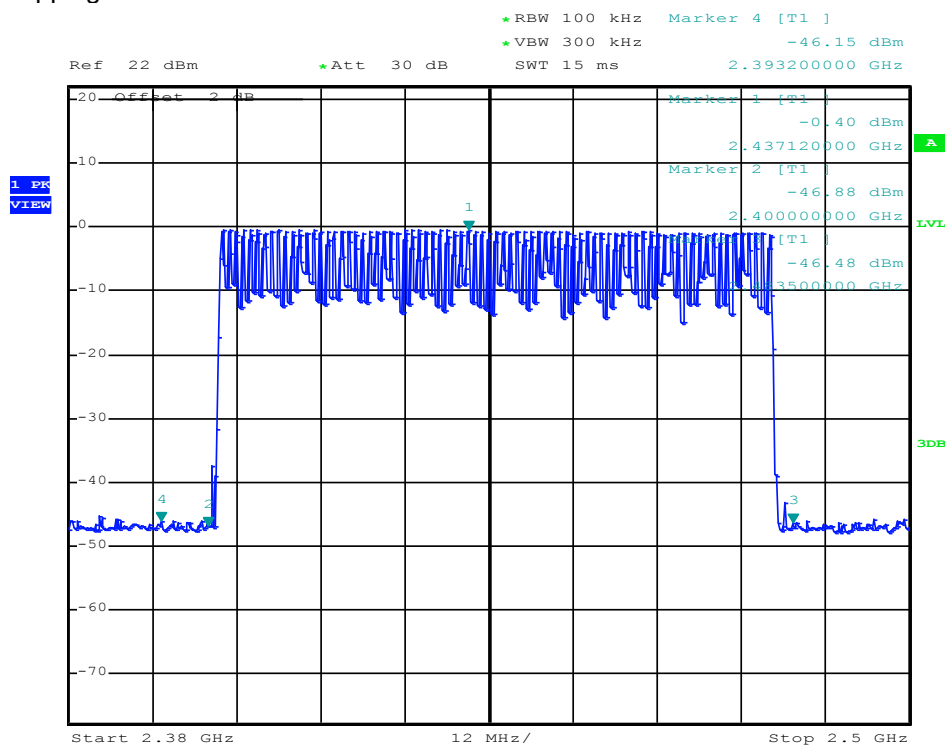
Band Edge, Low Channel of EDR mode



Band Edge, High Channel of EDR mode



Band Edge of hopping mode



Note: Testing was carried out within frequency range 9kHz to the tenth harmonics. The measurement results below 30MHz and 18GHz -26.5GHz were greater than 20dB below the limit, so only the radiated spurious emissions from 30MHz to 18GHz were reported.

Appendix B.7: Test Results of Radiated Spurious Emissions

30MHz - 1GHz

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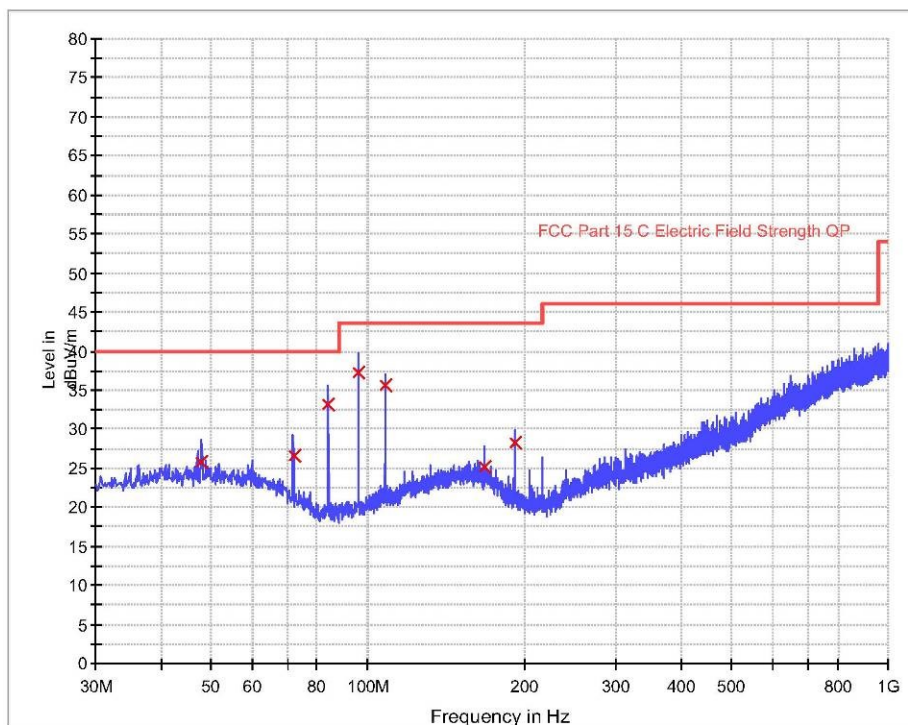
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Bohan
Test Item:	Helmet Remote Control
Identification:	FT03
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(1DH5 M)
Climate Condition:	20 °C, 50 %, 100 k Pa
Test Voltage/ Freq:	DC3.7V
Receipt No:	170103327
Report No:	/
Result:	Pass
Comment:	Test distance is 3m; Vertical

Subrange 1	
Frequency range:	30-1000MHz
Receiver:	ESCI 3
Transducer:	VULB9168



Tested by:

Jason Wu

Reviewed by:

Jacky Chen

20190617

20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
47.960000	25.8	1000.0	120.000	V	20.6	14.2	40.0	
71.960000	26.7	1000.0	120.000	V	18.0	13.3	40.0	
83.960000	33.1	1000.0	120.000	V	16.3	7.0	40.0	
95.960000	37.1	1000.0	120.000	V	16.9	6.4	43.5	
107.960000	35.7	1000.0	120.000	V	18.0	7.8	43.5	
168.000000	25.1	1000.0	120.000	V	21.1	18.4	43.5	
192.000000	28.3	1000.0	120.000	V	18.3	15.2	43.5	

Tested by:

Jason Wu

Reviewed by:

Jacky Chen

20190617

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TUV Rheinland (Guangdong) Ltd.

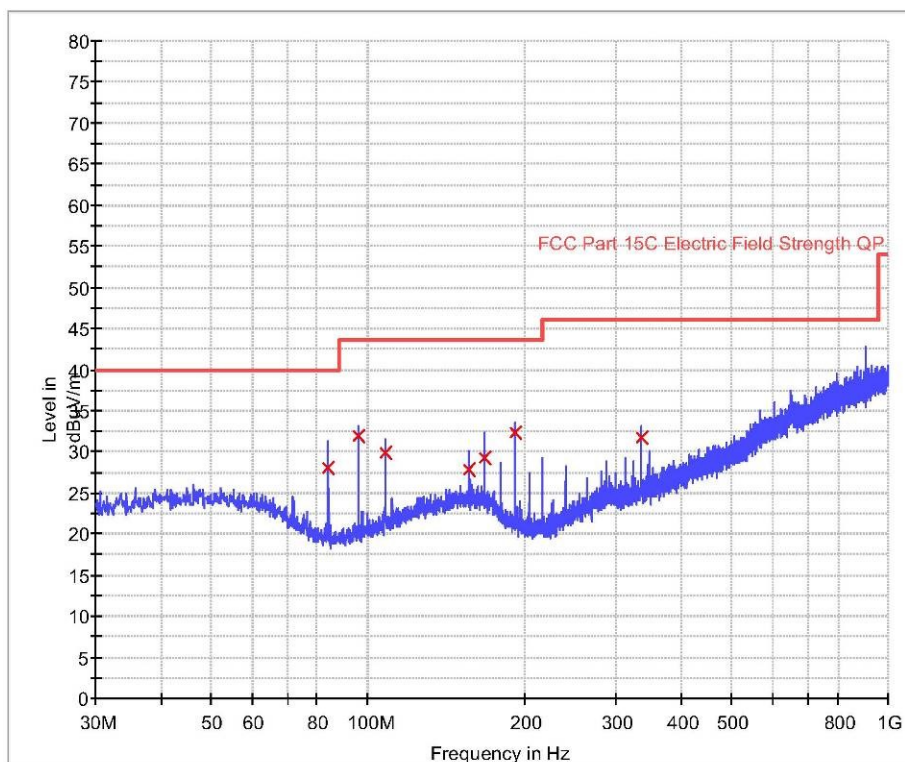
EMC Test Service Hotline: +86-20-28391188

EMC Test Record (Emission)

Common Information

Manufacturer:	Bohan
Test Item:	Helmet Remote Control
Identification:	FT03
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(1DH5 M)
Climate Condition:	20 °C, 50 %, 100 k Pa
Test Voltage/ Freq:	DC3.7V
Receipt No:	170103327
Report No:	/
Result:	Pass
Comment:	Test distance is 3m; Horizontal

Subrange 1	
Frequency range:	30-1000MHz
Receiver:	ESCI 3
Transducer:	VULB9168



Tested by: Jason Wu

Reviewed by: Jacky Chen

20190617

20190624

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

Limit and Margin

Frequency (MHz)	QuasiPeak (dBuV/m)	Meas. Time (ms)	Bandwidth (kHz)	Pol	Corr. (dB/m)	Margin - QPK (dB)	Limit - QPK (dBuV/m)	Comment
83.960000	28.1	1000.0	120.000	H	16.3	11.9	40.0	
95.960000	32.0	1000.0	120.000	H	16.9	11.5	43.5	
107.960000	29.8	1000.0	120.000	H	18.0	13.7	43.5	
155.960000	27.7	1000.0	120.000	H	21.3	15.8	43.5	
168.000000	29.4	1000.0	120.000	H	21.1	14.2	43.5	
192.000000	32.4	1000.0	120.000	H	18.3	11.1	43.5	
336.040000	31.7	1000.0	120.000	H	22.7	14.4	46.0	

Tested by:

Jason Wu

Reviewed by:

Jacky Chen

20190617

20190624

1GHz - 18GHz

Note: The measurement results 2402-2483.5MHz was exclusion band, when Band Reject Filter used. So only the radiated spurious emissions of out this exclusion band were evaluated.

TUV Rheinland (Guangdong) Ltd.

EMC Test Service Hotline: +86-20-28391188

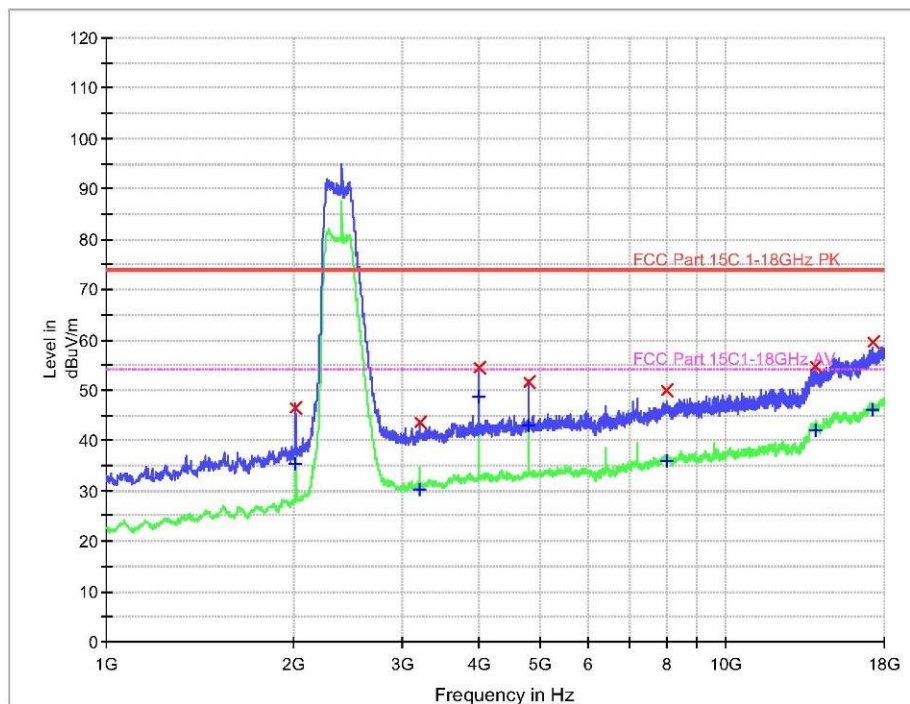
EMC Test Record (Emission)

Common Information

Manufacturer:	Bohan
Test Item:	Helmet Remote Control
Identification:	FT03
Test Standard:	FCC Part 15
Test Detail:	Radiated Emission
Operation Mode:	Transmitting(1DH5 L)
Climate Condition:	20 °C, 50 %, 100 k Pa
Test Voltage/ Freq:	DC 3.7V
Receipt No:	170103327
Report No:	/
Result:	Pass
Comment:	Horizontal

Subrange 1	
Frequency Range:	1GHz-18GHz
Receiver:	TUV FSP30
Transducer:	TUV SAC HF907/ TUV FSP30-TUV SAC HF907

EMCTT_EREFO11-A02-07_1GHz-18GHz_With PreAMP EXT& Notch filter



Tested by:

Jason Wu

Reviewed by:

Jacky Chen

20190617

20190624